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## **Local Anaesthetic Thoracoscopy Services in the UK**

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## **Abstract:**

### **Background:**

Local anaesthetic thoracoscopy (LAT) is an important procedure in the management pathway of patients with pleural effusions, particularly those with suspected malignancy. The last survey evaluating the use and development of LAT services in the UK was over a decade ago.

### **Objectives:**

We performed a survey of LAT practices in the UK to explore procedural preferences and variations in practice.

### **Methods:**

The online survey was cascaded via regional pleural specialists to sites performing LAT. One response per site was accepted.

### **Results:**

37 responses were received from England, Scotland and Wales. Most centres have regular access to a dedicated list and a designated area to perform LAT. 97% of the centres have at least 2 trained thoracoscopists. Some variation in practice is seen with patient preparation pre-procedure and medication use. Other procedures such as insertion of indwelling pleural catheters and adhesiolysis are not uncommon to be undertaken at the time of LAT.

### **Conclusions:**

Overall the results are comparable, excepting some minor variations in patient preparation pre-procedure.

We hope that this survey functions as an information resource for centres developing a LAT service or for those considering expansion.

### ***Keywords***

Pleural effusions; thoracoscopy; pleuroscopy

## Introduction

Local anaesthetic thoracoscopy (LAT) is an important diagnostic and therapeutic tool in the management of pleural effusions, especially those related to malignancy or suspected malignancy. Performed under light sedation, and potentially as a day case (1), LAT can provide an alternative to more invasive surgical techniques in some patients (2). Although national audits have reported limited data regarding UK LAT provision, (3, 4) the last comprehensive survey of practice took place over ten years ago (4) and thus little is known about current procedural preferences and practices in this area. To address this, we designed and conducted a nationwide survey of LAT sites, aiming to identify and characterise variances which may exist between different practitioners.

## Methods

The survey was designed and distributed using a common online service (Google Forms, Google.Inc, California, USA). UK pleural specialists were initially identified and contacted by email using lists created during recent multicentre studies. These individuals were asked to either provide contact details for colleagues at nearby centres and/or to cascade the survey to others within their region if applicable. The primary pleural specialist at each centre was requested to complete the survey on behalf of all local LAT practitioners. Only one response per centre was accepted. Survey questions can be found in full in the supplementary appendix.

## Results

The survey was open from 01/11/2017 to 01/12/2017. Responses were received from 37 individual sites in England, Scotland and Wales.

95% of responding centres consider LAT to be their preferred method for investigating an undiagnosed pleural effusion. 92% of the centres had a dedicated pleural procedure list, with frequency varying from twice per week to ad-hoc (figure 1).

### *Site and technique*

The median number of trained practitioners at each site was 2 (range 1-6), with 84% of the centres having two or more. A majority (76%) of centres prefer routinely admit patients overnight following a LAT. All except one centre practised a single port entry method, while rigid thoracoscopy the most popular technique used (31/37, 84%). Of those remaining, 3/37 (8%) had access to both rigid and semi-rigid thoroscopes and 3/37 (8%) used semi-rigid thoroscopies exclusively. 10/37 (27%) of centres had access to on-site thoracic surgical support. The availability of local standardised operating procedures (SOP) for potential complications was uncommon. (see figure 2)

### *Patient preparation*

Most centres (33/37, 89%) preferred patients to be 'nil by mouth' prior to LAT, however the prescribed duration ranged from 2 to 12 hours. 35/37 (95%) of responders would stop Clopidogrel prior to a LAT, the majority of these 34/35 (97%) choosing to do so for at least five days.

28/37 (76%) of centres do not routinely administer pre-LAT antibiotics. Where pre-procedure antibiotics were used, the preferred agents were Co-amoxiclav or Flucloxacillin.

Point-of-care ultrasound was used to guide port placement in 36/37 (97%) of centres (when LAT is being performed for pleural effusion). If the amount of fluid was found to be minimal, 28/36 (78%) would proceed with the procedure following induction of a pneumothorax, with the remaining choosing to abandon the procedure.

#### *Sedation and procedure*

Combination benzodiazepine/opiate treatment was the most common practice, with intravenous midazolam and fentanyl (21/37, 56%) or midazolam and alfentanil (4/37, 11%) most frequently reported. Midazolam in isolation was used at 5/37 (14%) centres. Four centres did not routinely use sedation.

A majority of operators (27/37, 73%) did not routinely use intravenous fluid at the time of the procedure.

The commonest interventions performed at the time of the LAT were adhesiolysis (26/37, 72%) and indwelling pleural catheter (IPC) insertion (31/37, 84%). Routine pleurodesis at the time of LAT or immediately post-procedure was performed by 31/37 (84%) centres, the preferred method being talc poudrage (34/37, 92%). 81% (30/37) routinely place either a 24 French or 20 French chest tube at the end of the procedure. Post-procedure thoracic suction was used by 46% (17/37) of centres, either immediately post-procedure (in recovery) or after the patient had been moved to the ward.

#### Discussion:

To our knowledge, this survey represents the most up to date and complete account of any nation's LAT practice. Although the survey focuses on the UK, the results are likely to be of relevance more broadly to both established and less-experienced LAT practitioners, providing a cross-section of how services are (and can be) delivered.

We believe the 37 centres who responded represent the majority of those undertaking LAT in the UK (3). However, given that there are centres who have relatively nascent services; who will begin delivering services shortly; or who did not respond to the survey, we would estimate that there are as many as 50 LAT sites in the UK at present. The survey by Burrows et al reported 11 centres performed LAT in 1999 and that this had risen to 17 by 2005 (4), with the ongoing expansion in LAT provision clearly demonstrating its continuing relevance in modern pleural diagnostic pathways.

These results have confirmed that there is generally good concordance in UK LAT practice. However, some variation appears to exist in relation to patient preparation, particularly with regards to pre-procedure

starvation; duration off anti-platelet agents; or the use of prophylactic antibiotics. This is perhaps unsurprising given the lack of robust evidence in these areas. We also note the low percentage of centres with SOPs on how to address potential complications. There are a number of limitations to this study. Inherent to any survey is the possibility of reporter bias, as well as the possibility that we were unable to identify all UK LAT sites. In addition, we are aware that some contacted centres who are known to undertake LAT opted not to complete the survey, again potentially biasing results.

Standardisation and sharing of practices and common outcomes is important for a number of reasons, including delivering safe and accountable healthcare; allowing new practitioners to set targets; and setting clinical governance expectations for those with more experience. As such, we believe these data will help provide benchmarks to allow the development of more efficient, prospective approaches to LAT delivery.

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#### Author contributions

The survey was conceived and conducted by DDF and RB who also wrote and prepared the manuscript under the guidance of NAM. All authors reviewed and agreed the final version of the manuscript.

#### Author Declarations

Authors report no conflicts of interest.

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